position of the cyclonic tracks and their dependence on the general (seasonal) distribution of pressure and of temperature over Europe and the Atlantic Ocean are seen to be controlling factors in the production of the different weather types.

THE FIRST DAILY WEATHER MAP.

ONE of the important dates in meteorology, about which there has been a good deal of dispute lately, is that which marks the issue of the first daily weather map. The credit of having been the first to publish such a map has been generally given to Le Verrier, who, on September 16, 1863, began the issue of a daily weather map in Paris. It is a fact, however, that twelve years before that, in 1851, a weather map based on observations made on the day of its publication was issued and sold in the Great Exhibition in England. The data for the map were collected by telegraph, and its publication was continued from August 8 to October 11, 1851, Sundays excepted. This was without doubt the first daily weather map. The September number of *Symons' Meteorological Magazine* contains a reproduction, about one-quarter the size of the original, of the Great Exhibition map of August 8, 1851.

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NOTES ON INORGANIC CHEMISTRY.

A NEW element appears to have been discovered in monazite, to which the discoverer, P. Barrière gives the name *Lucium*. It is closely akin to the rare earths, perhaps most resembling erbium, though with quite different spectral rays. Its atomic weight is calculated as 104. The elementary nature of the substance is reported to have been confirmed by Schützenberger, Cleve, Fresenius and Boisbaudran. The only thing which seems to render the discovery questionable is that Barrière proposes to use the substance for the production of incandescent gas light in competition with the Welsbach burner and without infringing upon the patents which practically cover the use of all the rare earths now known.

IN a recent number of the Comptes Rendue, Moissan has summed up his researches on metallic carbids. In the electrical furnace no compounds with carbon could be formed with gold, bismuth or tin. Silver and the platinum metals take up carbon, but all separates out as graphite on cooling. No crystallized iron carbid could be formed. Copper takes up a trace of carbon only, but it materially effects its properties. The metals of the alkalies and alkaline earths form crystalline carbids which are decomposed by cold water with the evolution of acetylene. The carbids of aluminum and glucinum with water give off methane; the carbid of cerium, acetylene and methane; the carbid of manganese, methane and hydrogen; the carbid of uranium, methane, hydrogen and ethylene. The latter also gives off liquid and solid hydrocarbons in considerable quantity, as do in smaller quantities, the carbids of cerium and lanthanum. The carbids of molybdenum, tungsten and chromium fuse only at high temperature and are not acted on by water in the cold. In addition the carbids of silicon (carborundum), titanium, zirconium and vanadium, formed only at very high temperature are known. The fact of the formation of different hydrocarbons by the action of water upon the metallic carbids may have a decided bearing on the formation of petroleum and natural gas, and other hydrocarbons occurring in nature.

ROSSEL has followed up the researches in which Moissan found that the carbon of iron which had been saturated at 3000° and cooled under great pressure, crystallized out in small diamonds. Examining very hard steel, formed under similar conditions, Rossel finds a considerable quantity of crystallized carbon, which resembles Moissan's

diamonds. Some of these crystals are more than half a millimeter in diameter.

J. L. H.

ASTRONOMICAL NOTES.

THE *Astronomische Nachrichten* of October 5 contains an extended article by Dr. Paul Harzer upon the influence of gravity on the circles of astronomical instruments. This subject, which was treated by Bessel in the last paper he ever wrote, seems to possess theoretical rather than practical interest.

THE Academy of Sciences of St. Petersburg has published a careful investigation of the errors of a micrometric apparatus constructed for the Academy by the Messrs. Repsold. The apparatus is intended for the accurate measurement of astronomical photographs, and its investigation has been carried out at the Poulcova observatory by Messrs. Renz and Kostinsky.

THE Washburn Observatory has issued Vol. X., Part I of its publications. It contains Prof. Comstock's observations of double stars made between the years 1892 and 1896. H. J.

SCIENTIFIC NOTES AND NEWS.

THE great physiologist, Dr. Moritz Schiff, professor at Geneva, died on October 6th.

DR. M. W. DROBISCH, professor of philosophy in the University of Leipzig, died on September 30th, at the advanced age of 94 years. Drobisch was one of the most eminent of Herbart's followers, and had made contributions to mathematics as well as to philosophy.

FRANÇOIS FELIX TISSERAND, director of the Paris Observatory, professor of astronomy in the Paris faculty of sciences, and member of the Institute, died from apoplexy at Paris on October 20th. Tisserand was born January 15, 1845. He was assistant in the Paris Observatory and was appointed director of the Observatory of Toulouse and professor in the faculty of sciences in that city in 1873. He was appointed first professor of mechanics at Paris, and later professor of astronomy. He was made director of the Paris Observatory in 1892, in the place of the late Admiral Monchez.

THE Australian geologist, Baron Heinrich Freiherr von Foullon-Norbeeck, was killed on August 10th by natives on the island of Guadalcanara, one of the Solomon group. He had landed with a party from the German warship *Albatross*, to explore the mountains of the island, when the party was attacked and Foullon-Norbeeck, as well as three sailors and a guide, were killed. He was born in 1850, and was at the time of his death chief geologist of the geological bureau at Vienna.

DR. THEODORE MARBE, professor of zoology at Buda-Pesth, died on September 5th at the age of 80 years. He was known especially for histological researches on muscles and nerves, but had also made contributions to zoology, and had formed in the University at Buda-Pesth a laboratory of zoology and a museum of comparative anatomy.

BARON SIR FERDINAND VON MÜLLER, the eminent botanist, died at Melborne on October 9th. From the London *Times* we take the following facts: Müller was born at Rostock in Germany, in June, 1825. He obtained a training in pharmacy and in his leisure time devoted himself to the study of botany and chemistry. In 1846–47 he studied at the University of Kiel, where he took the degree of Ph.D. For several years he investigated the botany of Schleswig and Holstein. In 1847, in order to counteract a hereditary tendency to phthisis, he emigrated to Australia, and at once entered upon those labors for the exploration and development of the continent which have only ceased with his death. From 1848 to 1852 he traveled over 4,000 miles, mainly for botanical purposes. In 1852 he was appointed government botanist to the colony of Victoria. In 1855–56 he accompanied as botanist the expedition under the command of A. C. Gregory for the exploration of north and central Australia, and was one of the four to reach Termination Lake, in central Australia. Some 6,000 miles of previously unknown land was traversed, and abundant collections made of the various forms of vegetation. On Müller's return to Melbourne he was